DOCUMENT RESUME

ED 115 369 PS 008 .72

AUTHOR Munroe, Ruth H.; Munroe, Robert L.
TITLE Infant Care and Childhood Performance in East Africa.
PUB DATE Apr 75
NOTE 17p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Denver, Colorado, April 10-13, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS *African Culture; Behavior Patterns; *Child Rearing; Cognitive Tests; Cultural Differences; Farmers; Foreign Countries; *Infant Behavior; *Learning Characteristics; Mothers; Observation; *Parent Child Relationship; Task Factors (Learning)
IDENTIFIERS *Africa

ABSTRACT

This paper reports on a followup study of the long-term effects of infant care patterns among the Logoli people of East Africa. In the original study, 12 infants, ages 7-13 months, were observed to obtain a measure of the frequency with which the infant was held by the mother and others, latency of response to the infant's crying, and the number of times the mother was inferred to have caused the crying. Followup data were obtained on 8 to 11 of the children at 5 years of age. Children's ability on three standardized tasks (perseverance on a puzzle, an embedded figures test, and a name-learning task) as well as in complex tasks and participation in household chores was evaluated. Study findings appeared to confirm that certain early care variables affect later performance of children. Difficulties in the interpretation of study findings are discussed. (BRT)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED115369

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Infant Care and Childhood Performance in East Africa

Ruth H. Munroe and Robert L. Munroe
Pitzer College, Claremont, California

PS 008172

DRAFT COPY

Paper presented at the meeting of the Society for Research in Child Development, April 10-13, 1975, Denver, Colorado.

DRAFT

Infant Care and Childhood Performance in East Africa[1]

Ruth H. Munroe and Robert L. Munroe
Pitzer College, Claremont, California

Our study of infant-care patterns among the Logoli people of East Africa was conducted in 1967. In 1971, the same small sample of children (then 5 years old) participated in a follow-up study. Some results of the follow-up study will be reported in this paper. Because of time limitations and the unfamiliarity of the setting to most of the audience, this paper will include a description of the cultural background for the study rather than the usual research literature background.

The Logoli people are a densely populated patrilineal Bantu-speaking group who live in the highlands just north of Lake Victoria in Western Kenya. The community in which we lived and worked was several miles off a paved road, about 15 miles from a city, and was quite typical for the area, known as Maragoli. Although there are local shops and markets, the community is not arranged in a "town" pattern. The people live on the land they farm, in an adjacent homestead pattern. There is a "corner", where shops are clustered, but no real town. The people meet each other as they pass on paths running between and through homesteads, on the open fields of the school compound, or on the dirt road that winds above the community. Much of the everyday life takes place outside, in the fields or in the cleared and grassy areas immediately surrounding the homesteads.

Typical residents in a traditional patrilocal Logoli homestead would be a father and mother and their adult married sons with their families. The group practices some polygyny. Most of the women marry into the community from several miles away but most make friends in the community and visit their own families relatively infrequently. The old homestead pattern is breaking down, as the

00003

population grows and the farms have been divided many times. Therefore, the extended family homestead is not the most typical, but does occur in 42% of the 38 homesteads of the community. In both extended and nuclear family homesteads, however, the household is ether nuclear or mother-child, with only members of a nuclear family sharing sleeping quarters.

For an infant, the implications of the homestead and household residence patterns and the adjacent field agriculture pattern are many. Relatively young children (of 3 1/2 years of age) may be left to caretake infant siblings when a large number of related persons are within easy shouting distance. And a mother, even when hoeing at the farthest field on a homestead, can be reached in five minutes at the most by a desperate sibling caretaker. Child caretakers, termed walking baby carriages by one anthropologist, are frequent. And these child caretakers may by only four years older than their infant charges. Typically, an older child is designated as a regular caretaker for the infant born second or third after him. The mother can go about her subsistence farming activities with the understanding that the caretaker will behave responsibly during her absence. Because about 60% of the potential caretakers might be school-aged children currently in school, the mother must frequently rely upon children under seven to provide any infant care needed during school hours.

Traditionally, the Logoli people had a mixed farming-herding economy. With dwindling home acreage (the homestead land holding is now about 2 1/2 acres with an average of about 9 people per homestead), the economic emphasis on cattle has nearly disappeared and subsistence farming is not adequate to support most homesteads. Extended educational and occupational opportunities are not abundant nearby so most of the adult males have been absent from the

community intermittently working at varying distances, for at least some part of their adult lives. This pattern undoubtedly has an effect on the general socialization patterns but has not been explored explicitly in this study.

The original investigation of patterns of infant care among the Logoli confirmed the hypothesis that infants in large-membership households would be held more and responded to more rapidly than would children in households with fewer members. (Munroe & Munroe, 1971). The present follow-up study was designed to investigate some hypothesized relationships between the early care pattern and later affective and cognitive measures.

Method.

Subjects. The sample was comprised of 12 Logoli infants, seven male and five female, who resided in or very near the community being studied. At the onset of the infant-care observations, the age range of the subjects was from seven to 13 months. The large age difference resulted from limitations upon sample selection imposed by the difficulty involved in observer time if infants were drawn from a larger geographical area and by some difficulty of access to families living outside the community. The same limitations are responsible for the small sample size. The observation periods were spaced, extending, with some break, for a period of about four months, with some infants nearly 18 months old by the end of the observational periods. All were still considered to be infants, by the Logoli, throughout the observational period. Younger infants were not selected, at the outset, because there was so little variation in the nearly-constant holding pattern up to seven months of age.

Household membership size and composition for the sample infants appeared to be fairly typical of the Logoli community with the exception of one composition

feature: The father was present in nine of the 12 sample households. In view of the absence of many adult males from the community at any one time, this sample includes an exceptionally high proportion of father-present homes.

By 1971, the sample of infants, now nearly all 5 year-old children, was intact in the community, with the exception of one female who was residing with her family in another area where her father was employed. The sample size is reduced further, on certain measures, by the illness of one child during the initial observations and by the absence of another child's mother, making an interview impossible. Sample size ranges from 8 (the interview measure) to 11, for the data reported below.

Measures: Infant Care. Initial attempts to gather extensive rating scale data about the quality of infant care and extensive running observations of care-related variables were abandoned when native observer reliability was low and the effect of the observer appeared to be altering the infant care pattern. The initial set of observations was devised to offset the latter problem. The mothers, upon first being asked if their infants could be observed, had obligingly thereafter "brought" the infant to the observer upon the latter's appearance in the homestead. Their cooperative attitude made any study of normal caretaking behavior impossible and a different method of observation necessary. The time-sampling method used might be called a "spot" or "flash" observation: the observers were instructed to approach the homesteads unobtrusively and, upon first sight of the infant, mentally photograph the scene. After this "photograph" that included the location of infant and others, the observer recorded the data, then entered the homestead and observed or inquired about other relevant data such as designated caretaker and location of the child's mother. Fourteen such observations were spaced over the infant's waking hours

00006

during a three- to six-week period. We report, in this paper, the frequency of mother holding[2] the infant (range: 0-5 observations of 14) and the frequency of others holding the infant (range: 0-10 observations of 14), as indices of maternal vs. "all-other" care of the infant.[3] Three relatively naive female Logoli observers and one of the authors conducted the observations. Average agreement among observers, on measures used for analysis, was 99%.

A second set of observations, employing a combination event-sampling and running record technique, was collected during the later period of the study. The data reported in this paper, from this second set of observations, include, in addition to "holding" scores, 1) the latency of response to the infant's crying (range of individual means = 11 to 126 seconds), during those instances of crying when the infant was not being held, and 2) the number of times the mother was inferred to have caused the infant's crying. (Mothers might be inferred to "cause" the infant's crying by moving away from the infant, by refusing to give the infant something, etc.) One male Logoli assistant conducted the observations, with training and postobservation reliability conducted by one of the authors. Agreement on the measures reported was relatively low (although the correlations between the observers on these measures were significantly higher than chance).[4]

The two sets of observations are combined by the addition of percentages (equally weighted) for the two infant care variables reported here.

Measures: Childhood. Three standardized tasks were administered to the Logoli children; one measure of frequency of independent participation in complex activities was derived from observations; one measure of amount of independent performance on relatively complex chores was gathered through mother interviews.

The experimental tasks, administered in a standard setting by a female Logoli assistant, included the following:

Perseverance on puzzle.[5] A very difficult wooden-framed puzzle was presented to the child for solution. The child's behavior was recorded in 20 second intervals for a total of 5 minutes as being active attempts at solution or one of 5 other categories of behavior. After 2 1/2 minutes, a "distractor" (blocks) was introduced. The number of intervals (of 15 total possible intervals) in which the child actively attempts a solution is the score used.

Embedded Figures Test.[5] The child is asked to locate figures or objects (all familiar to him) embedded in more complex designs. The test has 21 items, with number of correct items the score used (no time limit).

Name-Learning Task.[6] Photographs of two unfamiliar adult Logoli females and two unfamiliar adult Logoli males were presented to the children and "named," in turn, by the experimenter, with corrections continuing (after five seconds) on each trial. The trials-to-learning score has been inverted so that a high score indicates ease of learning.

Observation: Participation in Complex Activities. Twenty-five observations of each child were collected by one female and one male Logoli assistant using the "spot" or "flash" method described for the infants. Data include only the child's activity, coded as complex or not complex.[7] Typical complex activities include feeding or watering animals alone, or engaging in a construction task such as building an "airplane." The score a child achieves is a simple frequency of participation.

Interview: Chore Participation. Each mother was interviewed to ascertain the child's participation in household chores. Thirty-three common chores were included. The present score indicates the number of chores the child reportedly performed by himself. The chores our sample children performed alone ranged

from animal-tending to baby-sitting to going to the shop for supplies. (Range - 0-7.)

Results

The infant care variables that predicted to performance on the tested and observed measures centered around the amount of contact between the mother and the infant (Tables 1 and 2). The frequency of mother-holding in infancy was positively related to the degree of perseverance shown by the child in the puzzle-task. The frequent holding by siblings and others, however, is unrelated to the degree of perseverance the child displays in task solution.

Frequent mother holding in infancy predicts negatively both to speed of learning (in the naming task) and to the child's participation in complex activities in his daily life. Again, frequency of infant-holding by other people is unrelated to performance on this task and to the child's observed activities.

Two other infant-care variables are highly associated with later tested and observed performances. One of these involves the mother directly, but again in a somewhat complicated way. Mothers who were judged to cause infant crying - most frequently by their departure or by ignoring the infant's demands - had children who were less adept on both the learning task and the embedded figures test (see Table 2). Children of the "frustrating mothers" did persevere on the puzzle task, however.

The second infant-care variable that predicted strongly to five-year old child performance was the latency in response to the child' crying. Mothers are implicated in this score since they are the caretakers, and thus logical responders, in about 40% of the observations. However, this is not an exclusive mother score and we can only surmise the degree to which the mother

contributes to the effect (because instances of crying are too low to allow separate analysis). Where latency to infant's cries was high, EFT scores and independent chore participation were high. In other words, babies left to cry longer performed better on the EFT as five-year-olds and were participating in more chores independently.

Discussion

Briefly, the findings presented here appear to confirm that certain early care variables have an effect on later performance. Because we have no data that allow exploration of possible genetic differences nor any way of knowing the effect of experiences between the two years of data collection, however, we cannot claim causation strongly. For purposes of discussion, however, we will treat the early care variables as contributory to the later measures.

The mother's behavior to her infant appears to be strongly and positively implicated in that child's development of task-involvement. A mother's high amount of contact with her infant might allow the development of concentration on one individual and this concentration might extend later to task-centered behavior. Or the infant may be more active in the process of retaining his mother's attention and then continue to practice this perseverance in other spheres. In Logoli society, particularly, where a large number of people surround the infant, he may need to persevere to make a claim on the mother's time and attention. The infant may need to show a little resistance to the caretaking efforts of his siblings in order to be held more frequently by the mother. In any case, the infant's level of emotional attachment to the mother is probably involved since her being noted frequently as a "cause" of the infant's crying is even more highly correlated with his later task perseverance.

The high involvement of mother with infant is negatively related to the other tasks and behaviors reported here. The involvement appears to depress the child's learning facility and observed behavior in complex activities. The learning performance alone might have been interpreted as evidence of the child's timidity in the test situation but his high level of perseverance in the puzzle task does not fit a timidity interpretation. An explanation arising from the correlations between latency in response to crying and the tested field-independence and reported chore independence might be more consistent with the results. A high involvement with the mother may preclude the development of independence in cognitive skills by the age of five.[8] The infant who is left to cry a little longer in this society of normally rapid-baby-responders may begin to develop an independence somewhat earlier. And this independence may facilitate cognitive skill development. From other data collected on these infants, we know that those who receive high levels of attention from their mothers are more trusting in test situations and appear to be more trusting in general outlook.

Finally, we might mention some further cautions in our interpretation of these data. Methodological points include the problem of the small sample, time lapse, and inference about correlational data. Cultural cautions are also applicable. The Logoli hold infants frequently and we have used the term "mother-infant involvement" with considerable abandon. This leads the Westerner into an interpretation based on Western experience alone. By American standards, however, Logoli mothers attempt to "engage," or cause infants to respond to them very little. We have seldom observed a Logoli mother attempting to elicit a smile, a laugh, or a vocalization with her infant. The "involvement" appears to be based rather largely on physical closeness rather than on a socially enveloping closeness. Even those infants who are held frequently by the mother

are not intentionally highly stimulated by her - by American standards.

The age of the infants who are being held is also important. Infants of about a year of age are seldom kept in a confined position in America, and "holding" implies physical confinement along with the physical proximity. Although Logoli siblings often move about while holding infants, Logoli mothers are often found just sitting and holding or, less frequently, holding the infant while working in a relatively confined area. The infant, by this age, may experience a conflict between a positive factor - a very close food supply - and a negative factor - lack of freedom of movement - while being held by the mother. The task perseverance, in this study, may be an extension of the focus on "whatever is nearby" (as is necessary when being held) while the less independent performances may arise from the concomitant early lack of opportunity to explore the environment freely.

The years intervening between infancy and chil hood may be critical to understanding the obtained relationships. In Logoli culture, an infant is held to protect him from the environment, but once he achieves the toddler stage he is considered increasingly adept at protecting himself. By the time the child is three or so, he might be left almost completely to his own devices for many hours of the day. Although we are not suggesting that the mothers of our study necessarily treated this period of growing independence differently in any systematic way, the period itself is fraught with much more real change for a Logoli child than for an American child. And the way this change was handled might have contributed to the results.

Finally, all attempts to interpret the results must include consideration of the continuity of care. The observational findings in particular,

might reflect the continuity. The mothers who did not hold infants frequently or respond to them with alacrity might have children who behave independently out of necessity. The mothers may leave the five-year-old children on their own more frequently or assign them chores to do alone just as they left them with others more frequently when they were infants.

In summary, study of our very small sample Logoli infants has yielded some evidence consistent with findings for U.S. infants. In particular, it is similar to the White and Watts (1973) data on differences between 12-15 month old children classified as "predicted A,s" and "predicted C's." In their observations, they found that babies whom they had classified as potentially competent 3-6 year olds (A's) were confined less during the 12-15 month period than were their potentially less competent ("C" babies). The A's were observed to be confined to high chairs (12.1%) or playpens (5.1%) a total of 17.2% of the observed time. "C"'s were confined 38.3% (5.0% h. ch., 33.3% playpens) of the observed time - very much like the frequency of holding for Logoli infants.

Our Logoli evidence appears to emphasize the importance of the mother's caretaking pattern for the child's development of perseverance and implicates the mother's pattern of care in the child's lower performance on the learning task, the embedded figures, and the child's engagement in complex daily activities.

TABLE 1

CORRELATIONS BETWEEN FREQUENCY INFANT HELD (BY MOTHER AND OTHER) AND DEPENDENT MEASURES

				COMPLEX ACTIVITIES	
	PERSEVERANCE	NAME LEARNING	EFT	OBSERVATION	INTERVIEW
MOTHER HOLDING	.72*	-.73*	-.07	-.87**	.42
"OTHER" HOLDING	.00	-.26	-.10	.13	-.45

*p $<$ .05

**p $<$ .01

TABLE 2

CORRELATIONS BETWEEN CARETAKER BEHAVIOR AND DEPENDENT MEASURES

				COMPLEX ACTIVITIES	
	PERSEVERANCE	NAME LEARNING	EFT	OBSERVATION	INTERVIEW
MOTHER INFERRED CAUSE OF CRY	.81**	-.54*	-.54*	.22	.01
LATENCY OF RESPONSE TO CRY	-.05	.34	.70*	.17	.76*

*p $<$ .05
**p $<$ .01

FOOTNOTES

[1]A report on some of the same data, focusing on observational methods employed, was presented at the Mathematical Social Science Board Conference on Human Behavior Observations held in 1973 in Monroeville, Pennsylvania. The research was conducted while the authors were affiliated with the Child Development Research Unit (now Bureau of Educational Research), University of Nairobi, Kenya. The Unit was funded by a continuing grant from the Carnegie Corporation of New York to Harvard University and the University of Nairobi.

[2]In this particular society, infants are typically held on a hip, being strapped to the caretakers' back only when the caretaker is walking relatively long distances or, infrequently, when the caretaker works with both hands. In most of the observations, the infant was being held on the caretaker's hip or lap.

[3]Other observational measures of infant care (such as: designated caretaker, physical proximity to infant, persons who respond to crying, etc.) are highly correlated with the frequency of holding. The overall amount an infant is held, considered an index of infant indulgence in our initial work, is very high: the infant was observed to be held in 43% of the instances.

[4]See Munroe & Munroe (op. cit.) for a discussion of the problem of reliability between a native and a Western observer.

[5]The Perseverance and Embedded Figures tasks were developed for use with Guatamalan children (described in Nerlove, et. al. 1974). Unfamiliarity with the task demands may hinder performance.

[6]This measure, attempted in pre-testing with eight photographs but reduced to four to reduce difficulty, has two major problems. First, the children have little experience with pictured material so their discrimination among the faces probably involves constant re-scanning. Second, children typically address adults and many children by kin-terms so learning of names may be similarly impeded by task unfamiliarity.

[7]This coding follows the outline suggested by Nerlove, et. al., (1974) but is not necessarily the same since solo performance was considered necessary for a task or chore, to be coded as complex in the present data. Agreement is 89% between two independent coders.

[8]Frequency of mother holding and mother as inferred cause of crying are positively correlated (rho = .63, $p < .05$), giving some evidence that the level of holding may enhance the infant's involvement with the mother.

[9]The mother may be more restrictive and/or less attentive than "others" who hold the infant: mothers are more frequently found inside the house while holding the infant (than are "others")($p < .025$), and are more frequently (than "others") holding the infant while simultaneously engaged in another activity ($p < .025$).

REFERENCES

Munroe, R. H. & Munroe, R. L. Household density and infant care in an East African society. J. Social Psycnology, 1971, 83, 3-13.

Nerlove, S. B., Roberts, J. M., Klein, R. E., Yarbrough, C., & Habicht, J. P. Natural indicators of cognitive development: An observational study of rural Guatemalan children. Ethos, 1974, 2, 265-295.

White, B. L. & Watts, J. C. Experience and environment. Enblewood Cliffs, N. J.: Prentice-Hall, Inc., 1973.